Remarks

The specification has been amended to correct an error.

Claims 1-8 were pending in the application. In the Final Office Action mailed June 28, 2010, claims 1-8 are rejected. In the instant Amendment, claims 3-6 have been canceled, without prejudice. Claim 1 has been amended to incorporate the subject matter of canceled claim 4, specifically, to replace "thin steel sheet" with "cold-rolled steel sheet" and to include the recitation "an X-ray intensity ratio of a {110} plane parallel to the sheet surface at 1/8 the thickness of the steel sheet of less than 1.0". Claim 1 has also been amended to correct an error regarding the CTS value. Support for the amendment is found in the specification at page 15, lines 19-27. Claim 2 has been amended to have proper antecedent basis. Claims 7 and 8 have amended to update claim dependency.

Upon entry of the instant Amendment, claims 1, 2, 7 and 8 will be pending in the application. No new matter has been added by these amendments. Entry of the foregoing amendment and consideration of the following remarks are respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 1-4 remain rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,364,968 ("Yasuhara"). The Examiner contends that it would have been obvious to a person skilled in the art, at the time of the invention, to produce the claimed steel sheets because Yasuhara discloses thin hot-rolled steel sheets of an overlapping steel composition, produced by a substantially similar process, and having bainite as the main phase of not less than 90%. Applicants respectfully disagree.

While not acquiescing to Examiner's rejection, the claims have been amended herein to expedite prosecution of the current application. Specifically, claim 1 has been amended to recite a high yield ratio high-strength cold-rolled steel sheet, and having an X-ray intensity ratio of a {110} plane parallel to the sheet surface at 1/8 the thickness of the steel sheet at less than 1.0.

The present invention, as amended, provides a cold rolled steel sheet having excellent spot weldability and ductility and a method of producing the same. In particular, the yield ratio of the steel sheet obtained in the present invention with a cold-rolled steel sheet, is 0.64 to less than 0.90. If less than 0.64, a sufficient collision safety cannot be secured in some cases. Further, for the purpose of suppressing deterioration of the formability in the cold-

rolled steel sheet of the present invention, an X-ray intensity ratio of a {110} plane parallel to the sheet surface at 1/8 the thickness of the steel sheet is less than 1.0. If this X-ray intensity ratio is 1.0 or more, the formability deteriorates in some cases. Additionally, when the X-ray intensity ratio is 1.0 or more, special rolling or annealing is necessary and as a result, the cost rises. Thus, X-ray intensity ratio is limited to less than 1.0. Preferably, it is limited to less than 0.8 (*see* the specification, at p.13, ll. 16-22 and p.14, ll. 11-20).

Yasuhara teaches a thin high-strength hot-rolled steel sheet having excellent stretch flangeability and a method of producing the same characterized by a microstructure in which bainite having an average grain size of 3.0 μm accounts for 90% or more of the area (*see* Yasuhara, at the abstract). To arrive at the hot-rolled steel sheet, Yasuhara requires heating the slab at the time of hot rolling to 1200°C or less, leaving parts of the Nb and Ti undissolved, and thus promoting dynamic recrystallization in the process of rough rolling. According to Yasuhara, heating the slab to 1200°C or less, the precipitation strengthening by Nb(N,C) and TiC is also suppressed thereby improving uniformity and fineness of the structure (*see* Yasuhara, at col. 10, ll. 19-39). In addition, Yasuhara teaches start cooling within 2 seconds after the end of rolling and to cool by 20 to 150°C/sec until the 300 to 550°C coiling temperature (*see* Yasuhara, at the abstract). Nowhere does Yasuhara teach or suggest cold rolling. Thus, Yasuhara, does not teach or suggest a *cold rolled* steel sheet, much less a cold-rolled steel sheet having excellent spot weldability and ductility that has an X-ray intensity ratio of a {110} plane parallel to the sheet surface at 1/8 the thickness of the steel sheet at less than 1.0 and having a yield ratio of more than 0.64 to less than 0.90.

In the present invention, to arrive at the claimed cold-rolled steel sheet, the slab is heated to 1160°C or more in order to prevent deterioration of the bendability and hole expandability of products due to segregation. Preferably, the heating temperature is set to 1200°C or more, more preferably, the slab is heated to 1230°C or more (*see* the specification, at p.22, line 36 to p. 23, line 22). The cold rolled sheet of the present invention is cooled from the end of hot-rolling to 650°C at an average cooling rate of 25 to 70°C/sec. If less than 25°C/sec, a high yield ratio becomes difficult to obtain, while conversely if over 70°C /sec, the cold ductility and sheet shape become inferior or the ductility deteriorates in some cases. Further, in the present invention, the hot-rolled steel sheet is pickled. The pickled hot-rolled steel sheet is then cold-rolled at a reduction rate of 30 to 80% and runs

through a continuous annealing line or hot-dip galvanizing line (*see* the specification, at p. 23, ll. 29-35 and p. 24, line 31 to p. 25, line 1). Yasuhara, however, does not teach or suggest cold rolling or any of these process steps. A person skilled in the art would have expected that the microstructures of the cold-rolled steel sheet of the present invention and the hot-rolled steel sheet Yasuhara are different. As a result, the high yield ratio high-strength cold-rolled steel sheet superior in spot weldability and ductility as claimed would not be expected to be produced based on Yasuhara's disclosure.

Furthermore, as discussed in the previous response, Yasuhara is not concerned with spot weldability.

Therefore, for at least the reasons presented above, Yasuhara does not render the presently claimed invention obvious. Accordingly, the rejection of claims 1-4 under 35 U.S.C. §103(a) over Yasuhara cannot stand and should be withdrawn.

Claims 5-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yasuhara in view of Marder, Vol. 20 of ASM Handbook (1997), pages 1 to 10 ("Marder"). Claims 5-6 have been canceled.

As discussed in the previous response, Marder only discloses the common knowledge of hot dip coating. Marder does not disclose or suggest characteristic features of the relationship between the steel composition of the base steel sheet and spot weldability, nor does Marder teach or suggest the present production method or microstructure. Thus, Marder does not cure the deficiencies in Yasuhara..

Therefore, claims 7-8 are not obvious under 35 U.S.C. § 103(a) over Yasuhara in view of Marder.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is in condition for allowance. Early and favorable action by the Examiner is earnestly solicited. If the Examiner believes that issues may be resolved by a telephone interview, the Examiner is invited to telephone the undersigned at the number below.

Respectfully Submitted,

Date: December 28, 2010

By: /Weining Wang/

Weining Wang
Reg. No. 47,164
KENYON & KENYON LLP
One Broadway
New York, New York 10004
Telephone: (212) 425-7200
Fax: (212) 425-5288
CUSTOMER NO. 26646